REMARKS

Claims 1-29 were pending in this application. Claim 23 is cancelled and claim 30 was added. Claim 30 is a Beauregard type claim having limitations similar to claim 1. Claims 1-29 were rejected under 35 USC 112, and a number objections were raised regarding various other claims. Applicant has amended a number of the claims in light of the Examiner's thoughtful comments. Applicant's response below corresponds the numbering provided in the Examiner's Detailed Action, and hopefully resolves all outstanding objections and rejections.

Drawings

[2] Applicant is providing as an appendix the drawing illustrating Figure 10, showing the addition of the legend "Prior Art" as requested by the Examiner. Applicant requests the other informalities be held in abeyance until a notice of allowance is issued.

Claim Objections (5&6)

Applicant has amended a number of the claims to resolve the Examiner's objections. Discussion regarding these objections follow:

[5] Applicant has made minor revisions to claims 1, 12, and 28 (as well as claim 29) to hopefully make clear to Examiner what is occurring in the objected steps to these claim.

The addition of the word "characterizing" is fully representative of what is occurring here and is used multiple times in the specification in paragraphs related to this step. Also the Applicant has made both usages of "scalar" plural and the language relating to scalars as otherwise consistent.

[6] The terms dc_impedance and dc_base in claims 2 and 13 are described in the specification in paragraphs 31, 32 and 33. The Applicant is entitled to be his own lexicographer in the use of such terms. The use of this language is both consistent with dictionary definitions and usage and otherwise simplifies claim language. The Applicant has corrected the spelling of "integrated" within claim 2.

The Applicant has amended claims 3 and 14 to make them consistent with changes to the claims upon which they depend upon as well as clarify them. It is believed that these new claims avoid the previous concerns of the Examiner.

Claims 4 and 14 are also amended to be consistent with their parent claim. The Applicant has also amended the language to further describe that these claims are meant to describe the selection of an appropriate timing point to start the characterization (see paragraph 37 of the specification).

Since claims 1 and 12 are amended to comprise plural scalars, claims 5 and 16 no longer need amendment.

Additional language was included to clarify the meaning of dependent claims 6 and 17 as well as removing the hyphen in waveform, as requested by the Examiner. Applicant has included the language waveforms "generated by" the switching elements which hopefully addresses the Examiner's concern about the lack of a functional connection between claims 6 and 17 and those upon which they depend.

Structural language was added to claims 11 and 22 per the Examiner's request. The model topology is illustrated in FIG. 6.

A period was added after parasitics in claim 20 and a "do" in claim 26 per the Examiner's request.

Both claims 28 and 29 are simplified, removing the equation, substituting the element "modified local time" and making other corrections. The concept of modified local time is described in paragraph 50, and one illustrative embodiment of the concept is described in paragraphs 51-82. The Applicant has removed the parenthetical and added an "or" to make this language consistent with other recitations in the claims. Throughout the application, Applicant has mentioned that conductance is an alternative to using impedance. These changes overcome Examiner's objections to claims 28 and 29.

Claim 23 is cancelled so the Examiner's objection is moot.

It is therefore believed all objections are overcome.

Claim Rejections – 35 USC 112

[8] The Examiner has rejected claims 1-29 under 35 USC 112, second paragraph as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as his invention. Applicant has amended the claims to hopefully address at least part of Examiner's rejection. Particularly in the remaining independent claims the Applicant has added in the embedding step after the term "scalar" the phrase "in order to modify the behavior of the switching and non-switching elements to account for environmental conditions."

[9] Applicant feels that this additional language more clearly identifies the cooperative relationship between the scalars and the switching and non-switching elements. So, Applicant asks that this entire step is now respected as part of the claim.

There is second area that the Examiner points to in the rejection. It is that the claims omit an "essential structural cooperative relationship" between the elements, and the Examiner specifically lists edge arrival times, cycle time, scalar, and switching elements. The Applicant believes that this is an erroneous rejection. These items are not ascribed a "structural" relationship simply because they are well-known inherent attributes or parameters of switching and non-switching elements operating integrated circuit environment and models for those circuits. (Note: although not "structural" the Applicant believes that the amendment above regarding scalars should satisfy the

Examiner in terms of scalars are used in modeling an integrated circuit in that they provide a relationship.) As MPEP paragraph 2173.02 states, claim language should be interpreted not in a vacuum but by the content of the application, teaching of the prior art and in mind of one of ordinary skill in the art. It is contended that therefore that Applicant has met the requirements of 35 USC 112.

Claim 23 is cancelled, so the Examiner's rejection regarding that claim is moot.

Applicant therefore believes all rejections under 35 USC 112 are overcome.

Claim Rejections 35 USC 102

[11] Now pending claims 1 and 12 are rejected under 35 USC 102(b) as being anticipated by the P. Tehrani et al. paper ("the Tehrani paper") entitled Extraction of Behavioral Model of Digital I/O Buffers from IBIS. Applicant respectfully traverses the Examiner's rejection. This rejection would also apply to new claim 30 with similar limitations as claim 1 and 12.

The Tehrani paper on IBIS modeling addresses a different aspect to behavioral modeling then that claimed by Applicant in claims 1 and 12. This article is teaching a more accurate technique to separate the pull-up and pull-down currents when only the load current and output voltage is known as in the case when creating an IBIS model from actual hardware measurements. When creating IBIS models from netlist circuit

simulations, the inaccuracies cited in this paper do not exist because the local power supply currents and ground currents are available as well the load current which allows us to isolate the pull-up and pull-down structures for proper behavioral characterization.

[9] Applicant does not claim any such characterization technique by this application. The claims introduce a mechanism for to provide for environmental parameters in an otherwise properly characterized IBIS model. Thus neither the steps of:

characterizing the switching elements as voltage-time controlled resistors by obtaining the product of DC impedance (or conductance) as a function of voltage and scalars that are functions of time; or

embedding in the model equations that are functions of input edge arrival times and cycle time for each scalar in order to modify the behavior of the switching and non-switching elements to fit their environment;

are taught by the Tehrani paper.

Some advantages of the claimed model provides over typical IBIS models such as the one in the Tehrani paper are:

1) Allows for adjustment DC characteristics; they adjusted as continuous function of process, voltage and temperature;

2) Provides transient characteristics adjusted as continuous function of input arrival times, input slew rates, process, voltage and temperature; and

3) Pre-drive currents are modeled to accurately represent supply current for power grid analysis.

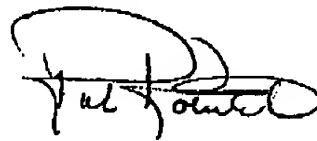Claim 23 is cancelled, so the rejection of that claim is moot.

Claims dependent on claim 23 now depend on claim 12.

Applicant therefore believes all rejections under 35 USC 102 are overcome.

SUMMARY AND CONCLUSION

In view of the foregoing, withdrawal of the rejections and the allowance of the current pending claims is respectfully requested. If the Examiner feels that the pending claims could be allowed with minor changes, the Examiner is invited to telephone the undersigned to discuss an Examiner's Amendment.

Respectfully submitted,

Date: ____Jan.14, 2004____

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